

CLAIMS

What is claimed is:

1. An apparatus comprising:
 - a first side including a generally planar surface adapted to be attached to via a vacuum force attachment;
 - a lid portion including the first side and having a dimension at least large enough to cover or extend over a plurality of contacts of a socket;
 - a test device portion integral with the lid portion, the test device portion having a plurality of energy conduits to provide a response to a plurality of energy stimuli to a second side disposed opposite the first side.
2. The apparatus of claim 1, wherein the lid portion includes a dimension to protect the plurality of contacts from impact, dust, and electrical coupling from the first side.
3. The apparatus of claim 1, wherein the energy conduits includes a plurality of stimuli transfer zones to receive a plurality of energy stimuli from the second side and to provide a response to the plurality of energy stimuli to the second side.
4. The apparatus of claim 1, wherein the energy conduits are to transfer a plurality of energy stimuli between the second side and the first side.
5. The apparatus of claim 4, wherein the stimuli transfer zones are to transfer the energy stimuli between the zones and the contacts by one of electrical contact, electrically capacitive coupling, a thermal coupling, radio frequency transmission over free space, infrared transmission over free space, and photonic transmission over free space.
6. The apparatus of claim 5, wherein the stimuli transfer zones are to couple to the contacts by a coupling without causing a force actuation, compression, or compliance of the contacts.

7. The apparatus of claim 5, wherein the stimuli transfer zones are to couple to the contacts by a coupling causing a force actuation, compression, or compliance of the contacts.
8. An apparatus comprising:
 - a first side forming a generally planar surface and a second side disposed opposite the first side, the second side having a dimension suitable to be removably coupled to a socket;
 - a lid portion including the first side and having a dimension at least large enough to cover a cavity and a plurality of contacts of the socket; and
 - a test device portion integral with the lid portion, the test device portion having a plurality of energy conduits to receive a plurality of energy stimuli from a plurality of contacts of the socket and to provide a response to the contacts.
9. The apparatus of claim 8, wherein the first side includes one of a generally planar surface adapted to be attached to via a vacuum force attachment to pick up and place the apparatus on the socket, and at least one mechanical attachment point to be mechanically grappled to by a device to pick up and place the apparatus on the socket.
10. The apparatus of claim 8, wherein the first side includes one of a generally planar surface adapted to be attached to via a vacuum force attachment to pick up and place the apparatus and the socket on a printed circuit board, and at least one mechanical attachment point to be mechanically grappled to by a device to pick up and place the apparatus and the socket on a printed circuit board.
11. The apparatus of claim 8, wherein the second side is to removably couple to a socket via at least one of an electronic chip interface, a cantilever, a forced insertion connection, an adhesive, a latch, a retaining lid, a distributed socket loading device, and a physical restraint.
12. The apparatus of claim 8, wherein the second side has a plurality of contacts to electrically coupled to the contacts of the socket.
13. The apparatus of claim 8, wherein the energy stimuli includes at least one of an electrical energy, a photonic energy, a magnetic energy, a thermal energy, an x-ray energy, an infrared energy, and a radio frequency energy.

14. The apparatus of claim 8, wherein the lid portion includes at least one of an alignment groove, an alignment ear, an orienting shape, an indexing pin or pin receptacle.
15. The apparatus of claim 8, wherein the plurality of energy conduits include at least one of an electrical contact, an electrical conductor, an electrical semiconductor, a silicon chip, an electronic device, an active electronic device, a field effect transistor (FET), an electrical signal trace, a printed circuit board (PCB), an area for receiving photonic energy, a photonic energy conduit, a photonic device, an analog device, a capacitor, a resistor, an inductor, a thermal conduit, and a plurality of capacitors and/or resistors.
16. The apparatus of claim 8, wherein the energy conduits include one of conduits disposed within the apparatus between the first side and the second side, and conduits disposed on the first side.
17. The apparatus of claim 8, wherein each conduit has a location and a physical dimension to receive at least one of the plurality of energy stimuli from a first location of the second side and respond to the at least one of the plurality of energy stimuli to the first location or to a second location of the second side.
18. The apparatus of claim 8, wherein the first side includes contacts to receive stimuli or to provide a response to stimuli received by the apparatus.
19. The apparatus of claim 8, wherein the lid includes a material suitable to protect the plurality of contacts from impact damage, dust, dirt, and additional electrical coupling.
20. A system comprising:
 - a printed circuit board (PCB);
 - a socket coupled to the PCB, the socket having a cavity and a plurality of contacts within the cavity to electronically couple to a computing device;
 - an apparatus removably coupled to the socket, the apparatus comprising:
 - a lid portion having a dimension at least large enough to cover the cavity;
 - a test device portion integral with a lid portion, the test device portion having a plurality of energy conduits electronically coupled to the

plurality of contacts of the socket to provide a response to the contacts for a plurality of energy stimuli received from the contacts.

21. The system of claim 20, wherein the apparatus further comprises an electronic topology to respond to a plurality of electronic signals received from the contacts:

22. The system of claim 20, wherein the socket has a cavity to removably couple to one of a computing device, an electronic device, an active electronic device, a field effect transistor (FET), a photonic device, an analog device, an electrical contact, an electrical conductor, an electrical semiconductor, and a silicon chip.

23. The system of claim 20, wherein the computing device includes one of an electronic device, an active electronic device, a field effect transistor (FET), a photonic device, an analog device, an electrical contact, an electrical conductor, an electrical semiconductor, and a silicon chip.

24. The system of claim 20, wherein the lid portion includes a dimension suitable to protect the plurality of contacts from impact, dust, and electrical coupling from the first side.

25. A method comprising:

removably coupling an apparatus having electronic socket testing functionality to a socket having a plurality of contacts to electronically couple to a computing device, wherein the coupling is sufficient to transfer a plurality of energy stimuli between the apparatus and the contacts without causing a force actuation, compression, or compliance of the contacts;

transporting the apparatus and the socket while removably coupled, and testing the socket including using the apparatus while the apparatus and the socket are removably coupled.

26. The method of claim 25, wherein testing is performed before or after transporting.

27. The method of claim 25, wherein testing includes stimulating a plurality of energy conduits of the apparatus and the apparatus responding to the stimulating.

28. The method of claim 25, wherein the stimulating includes transmitting electrical signals from a plurality of contacts of the socket, and where in the responding includes transmitting electrical responses to the contacts.

29. The method of claim 25, wherein testing includes at least one of a boundary scan test, a built in self test, a test of capacitive response, a test of resistive response, a test of inductive response, a test of thermal response, a thermal profile test, a test including response to the stimuli via a field effect transistor (FET), a test including response to the stimuli via a capacitor and/or resistor, a test to detect power nodes, a self test, a test for proper assembly, a test for proper connectivity, a test to detect electrical shorts, a test to detect electrical opens, a power up test, an enable power test, an unpowered test, a ground detection test, a test including response to the stimuli via a plurality of an array of capacitors and/or resistors, a test including response to the stimuli via a capacitor and/or resistor.

30. The method of claim 25, wherein removably coupling further comprises: covering at least a cavity of the socket including the plurality of contacts; protecting the plurality of contacts from impact, dust, and electrical contact outside the apparatus.

31. The method of claim 25, further comprising: packaging the apparatus and the socket while removably coupled; and storing the apparatus and the socket while removably coupled.

32. The method of claim 25, further comprising: recycling the apparatus after testing, wherein recycling includes removing the apparatus from the socket and then removably coupling the apparatus to another socket.

33. The method of claim 25, further comprising picking up and placing one of the apparatus on the socket, and the apparatus and the socket on a printed circuit board